Table 2-1. Reclamation Areas and Cover Types

Mine Panel Area	Subarea ¹	Cover Type	Area (acres)
Panel A	Area 1 - Backfilled Pit(s)	Topsoil Over Dinwoody and Chert	60
	Area 1 - External ODA	Topsoil Over Dinwoody and Chert	20
	Area 2 - Backfilled Pit(s)	Topsoil Only	115
	Area 2 - External ODA	Direct Revegetation, Topsoil Only	75
Panel B	Backfilled Pit(s)	None - Actively Mined, Open	155
	External ODA		50
Panel C	Backfilled Pit(s)	Topsoil Over Dinwoody and Chert	105
Panel D	North - Backfilled Pit(s)	Topsoil Only	95
	North - External ODA	Direct Revegetation	65
	South - Backfilled Pit(s)	Topsoil Over Chert	110
Panel E	Area 1 - Backfilled Pit(s)	Topsoil Over Chert	60
	Area 1 - External ODA	Topsoil Over Chert	70
	Area 2 - Backfilled Pit(s)	Topsoil Over Dinwoody and Chert	150
Pole Canyon ODA	Pole Canyon ODA	Dinwoody Over Chert ²	130

¹ Subareas are identified based on RI sampling areas (see RI Report), with further delineations of backfilled pits, external ODAs, and reclaimed areas (outside of RI sampling areas) based on mine reclamation data.

² A Dinwoody Over Chert cover was constructed on the Pole Canyon ODA in 2015 under a Non-Time-Critical Removal Action (NTCRA). During RI data collection and reporting (see RI Report), the cover types on the Pole Canyon ODA were Direct Revegetation and Topsoil Only.

Table 2-2. Predicted Selenium Loading from Each Source Area to Springs

Complex in 2050

Mine Feature	Area (acres)	Predicted Selenium Load to Springs in 2050 (No Action) (Ibs/year)	% of Total Load to Springs
		Direct Infiltration	
Panel A Area 2	190	130	41%
Pole Canyon ODA	130* ¹	16	5%
Panel D	270	104	33%
Panel E	120 ^{*2}	68	21%
		318	

lbs/day - pounds per day

^{*1 -} Area covered in the 2013 NTCRA.

^{*2 -} Area where seleniferous materials are present.

Table 3-1 Applicable or Relevant and Appropriate Requirements (ARARs)

	Standard, Limitation, or Requirement Criteria	Citation	General Description	Site-Specific Comments	Determination
Federal					
	National Primary Drinking Water Regulations	40 C.F.R. Part 141	Establishes health-based standards (maximum contaminant levels (MCLs) and MCL goals (MCLGs) for public water systems.		Applicable
Chemical-Specific		33 U.S.C. § 1314(a) 40 C.F.R. Part 131	Section 304 of the federal Clean Water Act (33 U.S.C § 1314) requires that individual states establish water quality standards for surface waters. The implementing regulation establishes the Ambient Water Quality Criteria, which are the requirements for state water quality standards that are protective of human health and aquatic life. Under CERCLA, water quality criteria for the protection of aquatic life are relevant and appropriate for response actions that address surface water or groundwater discharges to surface water. The standards incorporate designated uses for specific water bodies.	criteria (with the exception of the 2016 selenium	Applicable
		140 U. F.R. 6 261 4(D)(7)	EPA exempts mining waste from the extraction, beneficiation, and some processing of ores and minerals, in accordance with the Bevill amendment to RCRA.	Overburden waste rock meets this exemption.	Applicable
	Resource Conservation and Recovery Act	40 C.F.R. § 261.20	Generators of solid waste must determine whether the material is hazardous. A solid waste is hazardous if it exhibits the toxicity characteristic (based on extraction procedure Method 1311).	Potentially applicable if wastes are generated (for example water treatment residual).	Applicable
	National Emission Standards for Hazardous Air Pollutants	40 C.F.R. 61	Recommended air pollutant restrictions.	Potentially relevant and appropriate if remedial actions generate hazardous air pollutants.	Relevant and Appropriate
	Archaeological Resources Protection Act, and National Historic Landmark Regulations	16 U.S.C. §§ 470 et seq. 43 C.F.R. 7 36 C.F.R. Parts 60, 63, 65 and 800 40 C.F.R. § 6.301(b,c)	Section 106 of NHPA process balances needs of federal undertaking with effects the undertaking may have on historic properties.	Potentially applicable if historic or archeological sites are found in areas to be disturbed by remedial actions (i.e., borrow areas).	Applicable
	Historic Sites, Building, Objects, and Antiquities Act	36 C.F.R. 62		Potentially applicable if historic or archeological sites are found in areas to be disturbed by remedial actions (i.e., borrow areas).	Applicable
	Clean Water Act	Section 303(d) 40 C F R & 261 20	Under section 303(d) of the Clean Water Act, states, territories and authorized tribes (included in the term State here) are required to submit lists of impaired waters. These are waters that are too polluted or otherwise degraded to meet water quality standards. The law requires that the states establish priority rankings for waters on the lists and develop Total Maximum Daily Loads (TMDL) for these waters.	TMDLs exist for water bodies downstream of the site and should be considered in the selection of the remedial alternative.	Relevant and Appropriate
		Section 303(d)	Under the Clean Water Act, an applicant for a federal license or permit to conduct any activity that may result in a discharge to waters of the United States must provide the federal agency with a Section 401 certification. The certification, made by the state in which the discharge originates, declares that the discharge will comply with applicable provisions of the act, including water quality standards.		Relevant and Appropriate
		42 U.S.C. §§ 6901 et seq. 40 C.F.R. Parts 260-265 and 268	Sets criteria for hazardous waste management.		Applicable
	Migratory Bird Treaty Act		Pronibits taking, killing, possessing migratory birds and migratory game birds.	Remedial action must be designed and implemented to avoid harm to migratory birds.	Applicable
Action-Specific	Fish and Wildlife Coordination Act	16 U.S.C. 1531-1544	lany natural stream or hody of water for any nurnose, to take action to protect the tish and wildlife resources that may be attected	Potentially applicable if remedial action affects natural streams and water bodies.	Applicable
		16 U.S.C. §§ 1531 et seq.	to their survival. Substantive requirements include prohibition against taking an endangered or threatened species; if such	May be applicable if remedial action activities jeopardize threatened or endangered species or adversely modify their habitat.	Applicable
			Prohibits any person from knowingly, or with wanton disregard, selling, offering to sell, taking, purchasing, transferring,, bartering, exporting, importing, or possessing or harming a bald or golden eagle, or any part, nest, or egg thereof without obtaining a permit.	Remedial actions must be designed and implemented to avoid harm to bald or golden eagles, their nests or eggs.	Applicable
	Mineral Leasing Act	30 USC § 181et seq. 43 CFR 3500-3599	Regulates discovery, mining, processing and reclamation on federal phosphate leases.	Provisions regarding reclamation are potentially applicable.	Applicable
		40 C.F.R. § 125.3	Requirements for best treatment and control technology prior to discharge.	Potentially applicable if the remedy involves water treatment.	Applicable
	Clean Water Act	40 C.F.R. § 122 to 125	zone. Specifies requirements under 40 C.F.R. 122.26 for point source discharge of storm water from construction sites to surface	Potentially applicable if the remedy creates a point source discharge (i.e., from a water treatment system) or for storm water management during construction.	Applicable

Table 3-1 Applicable or Relevant and Appropriate Requirements (ARARs)

	Standard, Limitation, or Requirement Criteria	Citation	General Description	Site-Specific Comments	Determination
	Caribou-Targhee Land Use Management Plan (National Forest Management Act)	16 U.S.C. 1601-1614 36 C.F.R. 219	Establishes multiple use goals and objectives, forest-wide management requirements, and monitoring and evaluation requirements. Establishes direction so that future decisions affecting the Forest will include an interdisciplinary approach to achieve integrated consideration of physical, biological, economic and other sciences.	Remedial action must take into account the requirements of the plan.	Applicable
	FEMA Floodplain Regulations	44 C.F.R. § 60.3	. § 60.3 Regulates construction in floodplains.		Applicable
		40 C.F.R. § 6.302 40 C.F.R. 6 Appendix A	Wetlands Protection: Executive Order 11990 requires agencies conducting certain activities to avoid, to the extent possible, the adverse impacts associated with the destruction or loss of wetlands and to avoid support of new construction in wetlands if a practicable alternative exists.	May be applicable if remedial actions may impact wetlands.	Applicable
	DOI, Bureau of Land Management (RMP), April 2012: Record of Decision and Approved Pocatello Resource Management Plan, with amendments		Ensures that impacted lands will be rehabilitated to accommodate productive, post-mining land uses by establishing multiple use goals and objectives, BLM management requirements, and monitoring and evaluation requirements. Establishes direction so that future decisions affecting BLM managed lands will include an interdisciplinary approach to achieve integrated consideration of physical, biological, economic and other sciences. Provides the direction for how the public lands are to be managed/administered by the Pocatello Field Office	Remedial action must take into account the requirements of the plan.	Applicable
Location-Specific	2003 Revised Forest Plan for the Caribou National Forest & 1997 Revised Forest Plan - Targhee National Forest		Provides guidance for all natural resource management activities and establishes management standards within the Caribou- Targhee National Forest.	Remedial action must take into account the requirements of the plan.	Applicable
	Considering Wetlands at CERCLA Sites Guidance	OSWER 9280.03 (May 1994)	Guidance to evaluate potential impacts on wetlands.	May be helpful if remedial actions have the potential to affect wetlands.	Applicable
		25 U.S.C.§ § 3001 et seq. 43 CFR 10	Requires federal agencies and institutions that receive federal funding to return Native American cultural item to lineal descendants and culturally affiliated Indian tribes. It also establishes procedures for the inadvertent discovery or planned excavation of Native American cultural items on federal or tribal lands.	May be relevant and appropriate if cultural items are identified on federal lands.	Relevant and appropriate.
	National Forest Management Act of 1976 and Forest and Rangeland Renewable Resources Planning Act of 1971	16 U.S.C. 1600 36 C.F.R. 219	Guidance for natural forest system land management and resource planning.	Remedial action must take into account the requirements of the guidance.	Applicable
	Federal Land Policy and Management Act of 1976 (FLPMA)	43 U.S.C. 1701-1771; 1782	Public lands and their resources are periodically and systematically inventoried and their present and future use is projected through a land use planning process, and the land will be managed for use and protection of the land and its natural resources.	Provisions regarding undue degradation are potentially applicable to actions conducted on the portion of the Site that is public lands.	Applicable
State of Idaho					
	Idaho Water Quality Standards	IDAPA 58.01.02	Water quality standards and wastewater treatment requirements, including but not limited to: Administrative policy for protection of waters of the State (.050.02); Antidegradation policy (.051); Mixing zone policy (.060); Violation of water quality standards (.080); Analytical procedures (.090); Surface water use designations and nondesignated surface waters (.100 to .101); Designations of surface waters found within Salmon Basin (.130); General surface water quality criteria (.200); Surface water quality criteria for aquatic life, recreation, water supply, wildlife and aesthetics use designations (.250 to .253); Variances from water quality standards (.260); and Site-specific surface water quality criteria (.275).	The standards and requirements are applicable to surface water bodies at the Site.	Applicable
Chemical-Specific	Public Drinking Water Systems Rules	IDAPA 58.01.08	Controls and regulates the design, construction, operation, maintenance, and quality control of public drinking water systems to provide a degree of assurance that such systems are protected from contamination and maintained free from contaminants which may injure the health of the consumer.	Potentially relevant and appropriate if the potential exists for construction of a public drinking water system in the future.	Relevant and Appropriate
	Idaho Ground Water Quality Rule	IDAPA 58.01.11.200	Sets numerical and narrative standards that apply to all groundwater of the state.	Standards are applicable to groundwater at the Site.	Applicable
	Rules and Standards for Hazardous Waste	IDAPA 58.01.05	Establishes rules and standards for hazardous waste.	Numerical standards may be applicable to wastes generated by remedial action at the Site.	Applicable
	Idaho Hazardous Substance Emergency Response Act	Idaho Code §§39-7101 to 7115	Facilitates emergency response planning and requires expedient response and/or containment for hazardous substance release.	May be relevant and appropriate during remedial action construction.	Relevant and Appropriate

Table 3-1 Applicable or Relevant and Appropriate Requirements (ARARs)

	Standard, Limitation, or Requirement Criteria	Citation	General Description	Site-Specific Comments	Determination
	Solid Waste Management Rules	IDAPA 58.01.06	Establishes requirements applicable to all solid waste and solid waste management facilities.	May be relevant and appropriate if solid waste management units are constructed as part of the remedy.	Relevant and Appropriate
	Idaho Surface Mining Act	Idaho Code, Title 47, Chapter 15	Procedures for reclamation and vegetative planning.	Procedures should be considered in the selection of reclamation techniques.	Relevant and Appropriate
	Exploration and Surface Mining Rules	IDAPA 20.03.02	Best management practices and reclamation for surface mining operations.	Procedures should be considered in the selection of reclamation techniques.	Relevant and Appropriate
Action-Specific	Well Construction Standard Rules	IDAPA 37.03.09	Describes requirements for well construction and abandonment.	Rules must be followed during construction or abandonment of groundwater monitoring wells at the Site.	Applicable
	Rules for Control of Air Pollution in Idaho (Rules for Control of Fugitive Dust)	IDAPA 58.01.01 (650-651)	These rules provide for the control of air pollution in Idaho.	Potentially relevant and appropriate if remedial actions generate dust.	Relevant and Appropriate
	Stream Channel Alteration Rules	IDAPA 37.03.07	Describes requirements for alteration of stream channels.	Prevent alterations which will be a hazard to the stream channel and its environment.	Applicable
	Idaho Classification and Protection of Wildlife Rule	IDAPA 13.01.06.300	Classifies fish and wildlife species; identifies species of special concern, and protection of wildlife species from taking and possessing.	Remedial action must be designed and implemented to comply with these rules.	Applicable
	Protection of Animals and Birds	Idaho Code §36-1101 to 1103	Prohibits taking of wildlife, birds and fur-bearing animals; declares exceptions.	Remedial action must be designed and implemented to comply with these rules.	Applicable
	Preservation of Historical Sites	Idaho Statutes Title 67, Chapters 46 and 41	Guidance to preserve historical, archeological, architectural, and cultural heritage.	Potentially applicable if historic sites are found in areas to be disturbed by remedial actions (i.e., borrow areas).	Applicable
Location-Specific	Fences in General	Idaho Code 35-101 to -112	Provides specifications for lawful fences.	Potentially applicable if fencing is required as part of the selcted remedy.	Applicable.
	Stream Channel Alteration Rules	IDAPA 37.03.07	Prevent alterations which will be a hazard to the stream channel and its environment.	Prevent alterations which will be a hazard to the stream channel and its environment.	defer to Action- specific ARAR
	Mine Tailings Impoundment Structure Rules	IDAPA 37.03.05	Applies to structures upon which construction, lift construction, enlargement, or alteration is underway on or after July 1, 1978; establishes design criteria.	Applicable to any remedial actions at the tailings ponds.	Applicable

Table 3-2. Other Criteria or Guidance To Be Considered (TBCs)

Requirement	Standard, Limitation, or Requirement Criteria	Citation	Description	Category	
Federal Federal					
	National Secondary Drinking Water Regulations	40 C.F.R. Part 143	Establishes welfare-based standards (secondary MCLs) for public water systems.	твс	
Chemical-Specific	NOAA Freshwater Sediment Benchmarks	Buchman, M. F. 2009. NOAA Screening quick reference tables. NOAA OR&R Report 09-1, Seattle WA. Office of Response and Restoration Division, NOAA	Benchmarks for freshwater sediments, thresholds from NOAA Screening Quick Reference Tables (SQUIRTS).	твс	
Action-Specific	American Indian Religious Freedom Act	42 U.S.C. §§1996 et seq.	Protection of traditional culture and religious rights and practices of Native Americans.	твс	
Location-Specific	Pocatello Field Office Proposed Resource Management Plan and Final Environmental Impact Statement	U.S. BLM FES 10-12	This Proposed Resource Management Plan and Final Environmental Impact Statement describe and analyze the impacts of four alternatives for managing the public lands administered by the Pocatello Field Office in southeastern Idaho.	ТВС	
Native American Graves Protection and Repatriation Act		25 U.S.C. §§ 3001 et seq. 43 C.F.R. 10	Protects Native American cultural items including human remains, funerary objects, sacred objects, and objects of cultural patrimony.	твс	
State of Idaho					
Chemical-Specific	Secondary Drinking Water Regulations	IDAPA 58.01.08.400	Establishes welfare-based standards (secondary MCLs as defined in 40 C.F.R. Part 143) for public water systems.	твс	
	Idaho Non-Point Source Management Plan		Guidance to protect or restore (where possible) the benficial uses of the state's surface water and groundwater.	твс	
Action-Specific	Catalog of Stormwater Best Management Practices for Idaho Cities and Counties		Procedures to control erosion and sediment during and after construction.	ТВС	
	Safety of Dams Rules	IDAPA 37.03.06	Guidance to establish acceptable standards for construction and to provide for safety evaluation of new or existing dams.	TBC	
Location-Specific	Selenium Area Wide Investigation Area Wide Risk Management Plan		Discretionary guidance document to assist in mine-specific risk management.	твс	

Table 3-3. Preliminary Remediation Goals

Remedial Action Objective (RAO)	Preliminary Remediation Goal (PRG)
Groundwater	
Prevent future use of alluvial or Wells Formation groundwater with arsenic or selenium concentrations above MCLs as a drinking water source.	MCL 0.05 mg/L Selenium MCL 0.01 mg/L Arsenic
Reduce or eliminate concentrations of arsenic and selenium in contaminated Wells Formation and alluvial groundwater to below MCLs within a reasonable time frame given the circumstances of the Site.	MCL 0.05 mg/L Selenium MCL 0.01 mg/L Arsenic
Reduce or eliminate loading of selenium from groundwater to surface water so that it does not result in concentrations that represent an unnacceptable risk to aquatic life in the Lower Sage Creek and Crow Creek watersheds.	Risk-Based Site-Specific Standard for Brown Trout Whole body - 14.14 mg/kg Selenium Egg - 20.5 mg/kg Selenium (average values)
Reduce or eliminate loading of selenium from groundwater to surface water so that it does not result in concentrations above the Aquatic Water Quality Standard in the lower Sage Creek and Crow Creek watersheds.	Aquatic Water Quality Standard 0.005 mg/L Selenium (at any location in the watersheds)
Reduce or eliminate concentrations of selenium and manganese in groundwater utilized for stock watering to acceptable levels	Risk-Based Level 0.05 mg/L Selenium Risk-Based Level 0.05 mg/L Manganese
Soils, Overburden and Vegetation	
Reduce or eliminate unacceptable risks to terrestrial biota from soil and vegetation with elevated selenium concentrations on overburden or backfilled pits and external ODAs with minimal or no covers and in overburden seep/riparian areas downgradient of ODAs.	Risk-Based Level 50 mg/kg Selenium in Vegetation (acute - applied to single locations) Risk-Based Level 10 mg/kg Selenium in Vegetation (chronic - applied to average concentration over ODA and downgradient areas [including seep areas]) Risk-Based Level 137 mg/kg selenium in soils (chronic - applied to average concentration)
Reduce or eliminate unacceptable risks to livestock from exposure to vegetation on ODAs and in associated seeps with levels of selenium that pose an acute and chronic risk.	Risk-Based Level 50 mg/kg Selenium in Vegetation (acute - applied to single locations) Risk-Based Level 5 mg/kg Selenium in Vegetation (chronic - applied to average concentration over grazing allotment)
Reduce or eliminate unacceptable risks to future Seasonal Ranchers from ingestion of beef as the primary contributor of cancer risk, due to arsenic concentrations (calculated on a Sitewide basis) for soil.	Risk-Based Level of 11.5 mg/kg Arsenic (Sitewide Average Concentrations in Surface Soil)

Table 3-3. Preliminary Remediation Goals

Remedial Action Objective (RAO)	Preliminary Remediation Goal (PRG)
Surface Water	
Reduce selenium concentrations in lower Sage Creek and Crow Creek watersheds to below levels that pose unacceptable risks for aquatic life.	Risk-Based Site-Specific Standard for Brown Trout Whole body - 14.14 mg/kg Selenium Egg - 20.5 mg/kg Selenium (average values)
Reduce selenium concentrations in lower Sage Creek and Crow Creek watersheds to below the Aquatic Water Quality Standard.	Aquatic Water Quality Standard 0.005 mg/L Selenium (at any location in the watersheds)
Non-Regulated Surface Water	
Reduce or eliminate unacceptable risks to human receptors from ingestion of non-regulated surface water (seeps and detention ponds) due to arsenic.	MCL 0.01 mg/L Arsenic
Reduce or eliminate unacceptable risks to livestock from exposure to water in seeps or detention basins with selenium concentrations that would represent a risk.	Risk-Based (Acute) Level 0.314 mg/L Selenium

mg/L - milligrams per liter mg/kg - milligrams per kilogram μg/L - micrograms per liter

Table 4-1. Potential Sources - Overburden Solids and Soils

Potential Source Area	Materials	Current Reclamation Status	Estimated Area (acres)
Panel A Area 2 Panel A External ODA	Overburden Solids and Soils	Topsoil Only Cover Topsoil Only Cover	115 75
Panel D North/South Panel D External ODA	Overburden Solids and Soils	Topsoil Only Cover Direct Revegetation	205 65

Table 4-2. Retained Remedial Technologies and Process Options for Development of Remedial Alternatives

GRA Remedial Technology	Process Option
No Further Action	None
Institutional Controls	Land-Use Controls
	Deed Restrictions
	Administrative Orders/Consent Decrees
	Information Programs/Signs/Grazing Controls
Access Controls	Fences/Gates
Containment/Engineered Covers	Tailings Cover
	Chert/Limestone Cover
	Dinwoody Cover
	Water Balance Cover
	Geosynthetic Cover (GM/GCL)
Sediment Control Features	Dikes/Berms/Detention Basins
Surface Controls	Grading/Erosion Control/Vegetation
	Slope Reduction/Retaining Walls
Diversion	Open/Closed Channels
Removal	Excavation
	Extraction Wells
Disposal (solids)	Onsite Disposal/Onsite Consolidation
	Offsite Disposal
Disposal (aqueous)	Onsite Treatment Facility
Physical Treatment (aqueous)	Gravity Separation
	Mechanical Separation
	Media Filtration
	Reverse Osmosis/Ultrafiltration
Chemical Treatment (aqueous)	Chemical Precipitation
	Oxidation/Reduction
Biological Treatment (aqueous)	Biodegradation
Physical Treatment (solids)	Stabilization/Fixation
Chemical Treatment (solids)	Oxidation/Reduction

Table 5-1. Site-wide Remedial Alternatives

Remedial Alternative	Pole Canyon ODA	Panel A Area 2	Panel D Backfilled Pit / External ODA	Groundwater Discharge at Hoopes Spring and South Fork Sage Creek Springs	Cost (\$Million)
1 – No Further Action	NTCRA O&M activities terminated.	No action.	No action.	No action.	
2 – Barrier Covers	NTCRA O&M activities continued.	2 foot thick Dinwoody/Chert cover or equivalent. Passive/semi passive treatment at LP-1 seep.	2 foot thick Dinwoody/Chert cover or equivalent. Passive/semi passive treatment at DS-7 seep.	2a – No action. 2b – 2,000 gpm treatment 2c – 3,000 gpm treatment	14-39
3 – Barrier Covers + Infiltration Reduction Covers	NTCRA O&M activities continued.	2 foot thick Dinwoody/Chert cover or equivalent	Infiltration Reduction Cover.	3a – No action. 3b – 2,000 gpm treatment 3c – 3,000 gpm treatment	25-49
4 – Infiltration Reduction Covers	NTCRA O&M activities continued.	Infiltration Reduction Cover.	Infiltration Reduction Cover.	4a – No action. 4b – 2,000 gpm treatment 4c – 3,000 gpm treatment	33-57
5 – Geosynthetic Covers	NTCRA O&M activities continued.	Geosynthetic cover (GM, GCL or equivalent).	Geosynthetic cover (GM, GCL or equivalent).	5a – No action. 5b – 2,000 gpm treatment 5c – 3,000 gpm treatment	61-85

GCL - Geosynthetic Clay Liner

GM – Geomembrane

gpm – gallons per minute

NTCRA – Non-Time-Critical Removal Action

ODA – Overburden Disposal Area

O&M – Operations and Maintenance

Infiltration Reduction Cover – Specific configuration to be developed in remedial design.